CLAIMS

1. Network system comprising at least one input transport network element (10) and one output transport network element (11) interconnected by circuits in the network (20) with each transport network element comprising a traffic selector (22, 23) switchable between listening to the traffic input from a work circuit (13, 14) and listening to the traffic input from a reset circuit (18, 19) and a Split module (21, 24) that allows sending of a same traffic output either to a work circuit or to a reset circuit with each transport network element comprising in addition an agent (25, 26) termed ASTN agent that commands activation and deactivation of the reset circuit and switching of the traffic selector between the work circuit and the reset circuit with each agent being able to emit into the network an Activate message to command activation of the reset circuit and signal to the other agent completed activation of the reset circuit, and a RevertRequest message for signaling to the other agent the desire to deactivate the reset circuit previously activated, and a Revert message for commanding deactivation of the reset circuit after reception of a RevertRequest message sent to it by the other agent.

2. Network system in accordance with claim 1 characterized in that when an ASTN agent:

- detects a failure on the work circuit input to its own transport network element it switches the traffic selector to receive the traffic on the reset circuit and emits an "Activate" message if the reset circuit is not already activated;

- detects the disappearance of a failure on the work circuit input to its own transport network element and switches the traffic selector to receive the traffic on the work circuit and sends the RevertRequest message to the agent of the other transport network element; and
- receives a RevertRequest message and replies with a Revert message that releases the reset circuit if its traffic selector is already switched to receive the traffic on the work circuit.

3. Network system in accordance with claim 2 characterized in that in each transport network element a sub network connection protection having a so-called Finite State Machine is created which can have a first status termed NoRequest and a second status termed AutoSwitch; the NoRequest status means that no failure is detectable by the agent on the work circuit at input to its own transport network element and therefore that the corresponding traffic selector listens to the traffic on the work circuit; the AutoSwitch status means that a failure is detected on the work circuit at input to its own TNE and therefore the corresponding traffic selector listens to the traffic on the reset circuit.

4. Network system in accordance with claim 3 characterized in that when an agent receives a "Revert" message it destroys its own sub-network connection protection.

5. Network system in accordance with any preceding claim characterized in that the network is an SDH transport network.

6. Method for activation and deactivation of a pre-programmed reset path in a transmission network between two input and output transport network elements in which there is an agent termed ASTN agent which commands activation and deactivation of the reset circuit with each agent being able to emit the messages "Activate" which an agent sends to command activation of the reset circuit to interconnect the reserved resources, "RevertRequest" which an agent sends to signal to the other agent its desire to deactivate the reset circuit, and "Revert" which an agent sends to command deactivation of the reset circuit after reception of a RevertRequest message sent by the other agent.

7. Method in accordance with claim 6 in which in each transport network element is created a sub-network connection protection having a so-called "Finite State Machine" that can have a first status termed "NoRequest" and a second status "AutoSwitch" and in which the agents follow the following rules:

(a) When an ASTN agent detects a failure in a work circuit input to its own transport network element, the finite state machine of its sub-network connection protection changes to the AutoSwitch status and the transport network element switches from listening to the traffic on the work circuit to listening to the traffic on the reset circuit, and if the sub-network connection protection of the transport network element is not already active the agent creates the sub-network connection protection and emits the Activate message;

(b) When an ASTN agent detects the disappearance of the input failure, the finite state machine of its sub-network connection protection changes to the NoRequest status and the transport network element returns to listening to the traffic on the work circuit and the RevertRequest message is sent to the other agent;

(c) When an ASTN agent receives a RevertRequest, it replies with a Revert which deactivates the reset circuit only if the finite state machine of its sub-network connection protection is in NoRequest status; and

(d) When an ASTN agent receives a Revert, it destroys its own sub-network connection protection.